



Plant Monitoring  
**SMA OPC SERVER**  
User Manual





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## IMPORTANT SAFETY INSTRUCTIONS

### SAVE THESE INSTRUCTIONS

This manual contains important instructions for the following products:

- SMA OPC Server

This manual must be followed during installation and maintenance.

The product is designed and tested according to international safety requirements, but as with all electrical and electronic equipment, certain precautions must be observed when installing and/or operating the product. To reduce the risk of personal injury and to ensure the safe installation and operation of the product, you must carefully read and follow all instructions, cautions and warnings in this manual.

### Warnings in this Document

A warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the SMA equipment and/or other equipment connected to the SMA equipment or personal injury.



#### **DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



#### **WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



#### **CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

#### **NOTICE**

NOTICE is used to address practices not related to personal injury.

## Other Symbols in this Document

In addition to the safety and hazard symbols described on the previous pages, the following symbol is also used in this manual:



### **Information**

This symbol accompanies notes that call attention to supplementary information that you must know and use to ensure optimal operation of the system.

## General Warnings



### General warnings

All electrical installations must be done in accordance with the local and *National Electrical Code*® ANSI/NFPA 70 or the *Canadian Electrical Code*® CSA C22.1. This document does not and is not intended to replace any local, state, provincial, federal or national laws, regulation or codes applicable to the installation and use of the product, including without limitation applicable electrical safety codes. All installations must conform with the laws, regulations, codes and standards applicable in the jurisdiction of installation. SMA assumes no responsibility for the compliance or noncompliance with such laws or codes in connection with the installation of the product. Before installing or using the product, read all of the instructions, cautions, and warnings in this manual.

# Table of Contents

<b>1</b>	<b>Information on this Manual. ....</b>	<b>9</b>
1.1	Validity .....	9
1.2	Target Group .....	9
1.3	Nomenclature .....	9
<b>2</b>	<b>SMA OPC Server .....</b>	<b>10</b>
2.1	Functions .....	10
2.2	Integration of the SMA OPC Servers into the IT System Environment .....	10
2.3	System Requirements .....	13
<b>3</b>	<b>Safety .....</b>	<b>14</b>
3.1	Intended Use .....	14
3.2	Safety Precautions .....	15
3.3	Operating Instructions .....	15
<b>4</b>	<b>Installation .....</b>	<b>16</b>
4.1	Installation Information .....	16
4.1.1	Installing the SMA OPC Server under Windows .....	16
<b>5</b>	<b>Configuration .....</b>	<b>17</b>
5.1	Configuration Information .....	17
5.2	Network Information .....	17
5.3	Opening the configuration interface .....	17
5.4	Configuration Interface .....	18
5.5	General Settings .....	19
5.5.1	Changing the Language .....	19
5.5.2	Saving Log File .....	19
5.6	OPC Settings .....	20
5.6.1	Setting the Scanning Cycle of Sunny WebBox Devices .....	21

5.6.2	Enabling XML-DA .....	22
5.7	Configuration of WebBox Devices .....	23
5.7.1	Sunny WebBox List .....	23
5.7.2	Adding a Sunny WebBox Device .....	24
5.7.3	Namespace .....	25
5.7.4	Replacing a Device .....	26
5.7.5	Device Firmware Update .....	26
<b>6</b>	<b>Operation .....</b>	<b>27</b>
6.1	Starting SMA OPC Server .....	27
6.2	Status Display .....	27
6.3	Exit the SMA OPC Server .....	27
6.4	OPC Client Information .....	28
6.4.1	OPC Client Installation .....	28
6.4.2	Displaying the Namespace in an OPC Client .....	28
6.4.3	Changing Parameters via the OPC Client .....	28
<b>7</b>	<b>Uninstalling SMA OPC Server .....</b>	<b>29</b>
<b>8</b>	<b>Updating the SMA OPC Server .....</b>	<b>30</b>
<b>9</b>	<b>Troubleshooting .....</b>	<b>31</b>
<b>10</b>	<b>Measurement Channels .....</b>	<b>33</b>
<b>11</b>	<b>Contact .....</b>	<b>34</b>

# 1 Information on this Manual

This manual describes the installation, configuration and operation of the SMA OPC Server.

## 1.1 Validity

This manual is valid for the SMA OPC Server software version 1.1, and later.

## 1.2 Target Group

This manual is intended for system administrators and end users. Certain tasks set forth in this manual may only be performed by skilled workers with the appropriate qualification.

## 1.3 Nomenclature

In this document, SMA America Production, LLC and SMA Solar Technology Canada Inc. are hereinafter referred to as SMA.

## 2 SMA OPC Server

### 2.1 Functions

The SMA OPC Server is a server-based 32-bit application for standardized data exchange with devices from SMA.

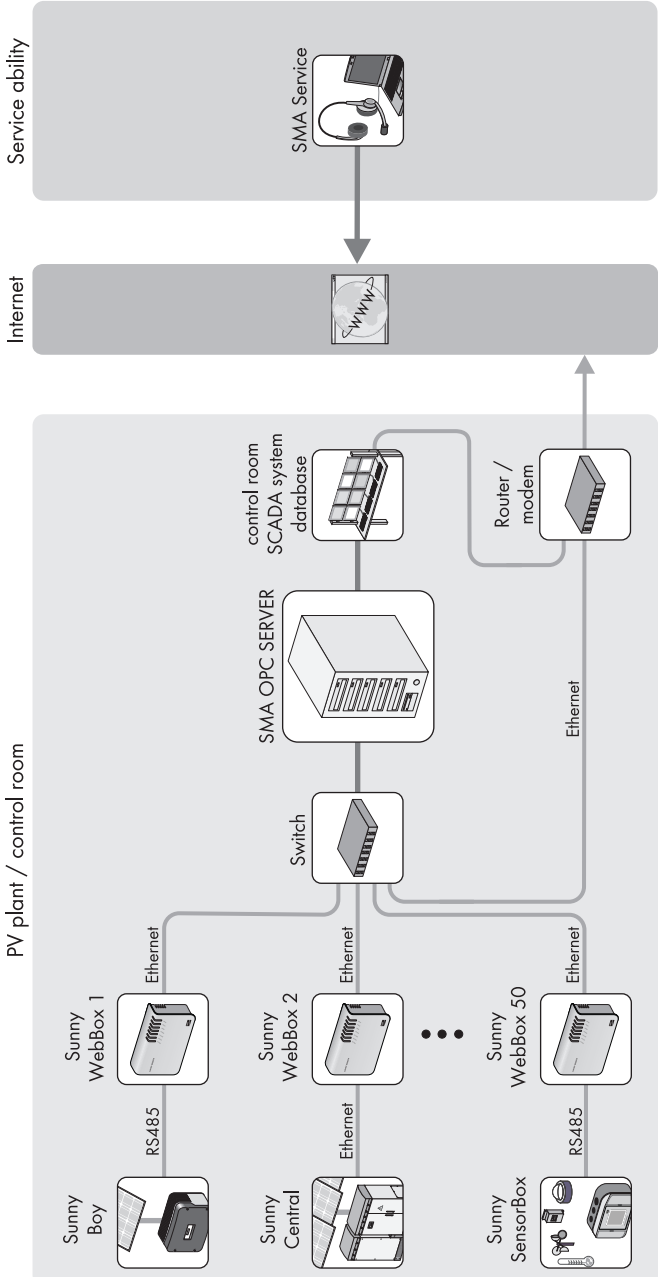
#### Summary of the Main Characteristics of the SMA OPC Server

- Output of the instantaneous values of all SMA devices in OPC standard
- Reading and writing the parameters of all SMA devices in OPC standard
- Available OPC standards
  - DA (based on WIN DCOM)
  - XML-DA
- All variables are displayed in STRING data format

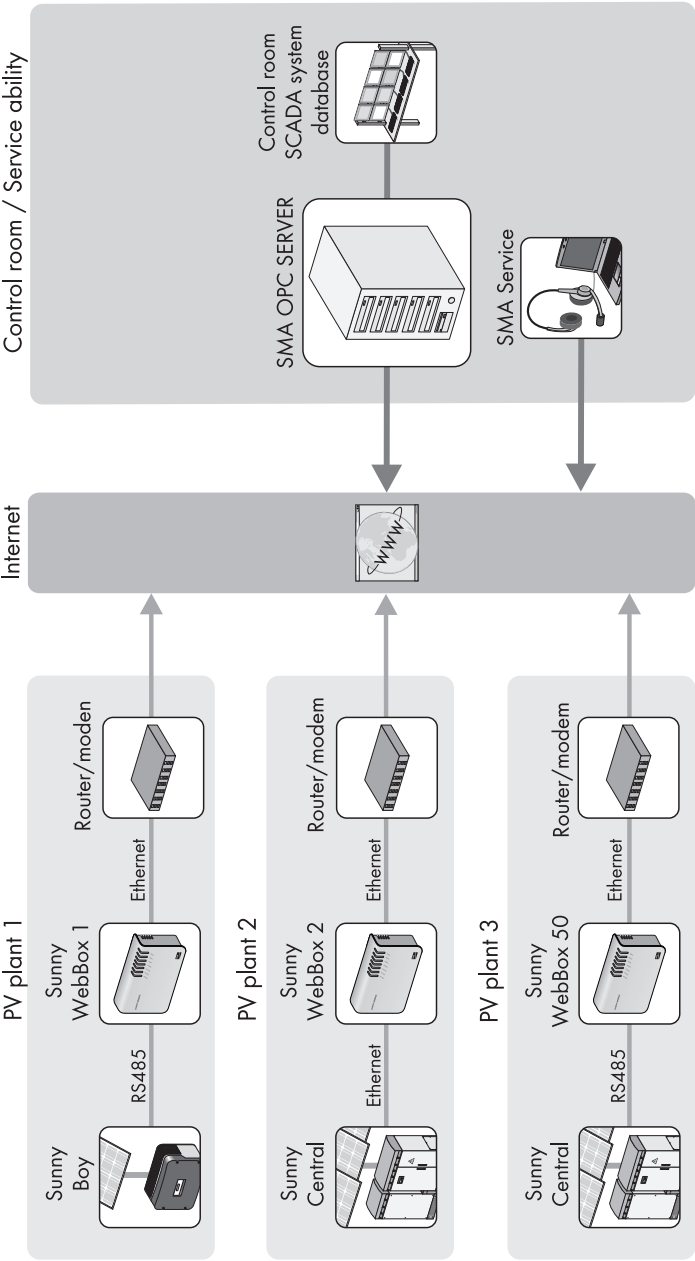
### 2.2 Integration of the SMA OPC Servers into the IT System Environment

The SMA OPC Server can be integrated into a variety of IT system environments. Two examples are described below.

Architecture with Decentralized SMA OPC Server and a SCADA System



Architecture with a Central SMA OPC Server and a SCADA System



2.3 System Requirements

Supported operating systems	Windows XP Professional*, Windows Server 2003
Processor:	2 GHz
Main memory (RAM)	2 GB
Free hard drive space	10 MB**
Other software	.NET Framework 2.0

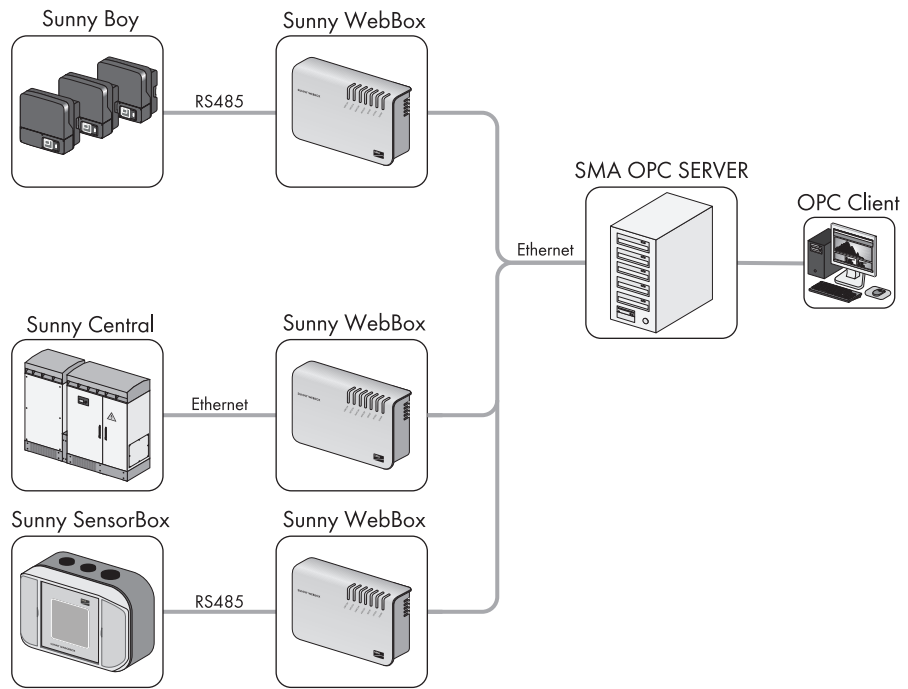
\* with Service Pack 2

\*\* without log files

# 3 Safety

## 3.1 Intended Use

The server-based 32-bit application compiles the instantaneous values of your PV plant from up to 50 Sunny WebBox devices and makes them available externally for OPC Clients via OPC Data Access and OPC XML-DA. The SMA OPC Server can be used to change the parameters of the PV plant (see section 6.4.3 "Changing Parameters via the OPC Client" (page 28)). The SMA OPC Server supports all Sunny WebBox devices with firmware version 1.46, and later.



## 3.2 Safety Precautions

### NOTICE

Incorrect parameter settings can damage or destroy the inverter.

- Do not alter these safety-relevant parameters without prior consultation with your electric utility company which operates the grid into which your plant feeds.

## 3.3 Operating Instructions

- The performance data issued via the SMA OPC Server may differ from the electricity meter data. Do not use the data for billing purposes.

## 4 Installation

### 4.1 Installation Information

The following section describes the installation of the SMA OPC Server using a Microsoft operating system. Note the system requirements in section 2.3 "System Requirements" (page 13).



#### Installation rights for installing the SMA OPC Server

You must have administrator rights for your operating system in order to install the SMA OPC Server.



#### OPC Core Components

Before you can process instantaneous values and parameters of the PV plant with an OPC Client, you must install the OPC Core Components valid for your operating system on the SMA OPC Server and the computer of the OPC Client.

The OPC Core Components for the SMA OPC Server can be installed simultaneously with the installation of the SMA OPC Server. The OPC Core Components for the OPC Client are to be found on the CD provided.

#### 4.1.1 Installing the SMA OPC Server under Windows



#### The SMA OPC Server requires "NET Framework 2.0"

Install "NET Framework 2.0" before you install the SMA OPC Server. You can install "NET Framework 2.0" directly from the CD or download and install it from [www.microsoft.com](http://www.microsoft.com).

1. Close all open applications.
2. If necessary, uninstall the previous version of the SMA OPC Server (see section 7 "Uninstalling SMA OPC Server" (page 29)).
3. Run "Setup.exe".
4. Follow the instructions of the Installation Assistant. The configuration interface opens automatically.
5. Configure the SMA OPC Server (see section 5 "Configuration" (page 17)).
6. Finish installation.
7. Set the required language (5.5.1 "Changing the Language" (page 19)).

## 5 Configuration

### 5.1 Configuration Information

In order to adjust the SMA OPC Server to your local conditions, make the following settings:

- Add Sunny WebBox devices.
- Detect namespace.
- Set scanning cycle of the Sunny WebBox devices.
- If necessary, activate OPC XML-DA.



#### **Restarting SMA OPC Server upon completion of configuration**

Restart the SMA OPC Server upon completion of the configuration in order to apply the settings.

### 5.2 Network Information

#### **Network Ports**

The SMA OPC Server communicates via Port 80 as standard.

If you have enabled security measures in your network that control and limit access to the local network, you must ensure that Port 80 is enabled. If necessary, consult the manual of the corresponding product.

#### **Proxy Server**

At present, the SMA OPC Server does not support proxy servers. For this reason, Sunny WebBox devices cannot be detected if they can only be accessed via a proxy server.

### 5.3 Opening the configuration interface

1. Select "Start > Programs > SMA > SMA OPC Server > OPC Server (Config)" in Windows.
- ☒ The configuration interface opens.

## 5.4 Configuration Interface



Position	Designation	Meaning
A	Tabs	The tabs are the main menu for the configuration interface.
B	Content area	The respective settings for the SMA OPC Server are made in the content area.
C	[Ok]	Saves all current settings and closes the configuration interface.
D	[Cancel]	Closes the configuration interface without saving the current settings.
E	[Apply]	Saves all current settings without closing the configuration interface.

## 5.5 General Settings



### 5.5.1 Changing the Language

1. Select the "Global Settings" tab.
2. Select the language in the "Language" drop-down menu.

The language is activated immediately.

### 5.5.2 Saving Log File

With the help of the SMA OPC Server configuration interface you can generate a log file in .txt format. The log file allows you to detect the current situation in the network, and in case of need, use it for troubleshooting (see section 9 "Troubleshooting" (page 31)).

The SMA OPC Server saves the log file daily in the selected directory and the sub-directory: .../Year/Month/yyyy\_mm\_dd\_logfile.txt.

Example of a log file dated November 01, 2009 that logs all errors: ...selected directory/2009/11/2009\_11\_01\_logfile.txt.

In order to save the log file, proceed as follows:

1. Select the "Global Settings" tab.
2. Select a logging type in the "Logging" area. The following options are available:

Logging type	Meaning
No logging	No log file will be saved.
Only Error(s)	Only errors will be saved.
Message flow	Both errors and the communication flow with the Sunny WebBox devices will be saved.
Data	Errors, communication flow and data received by the SMA OPC Server will be saved. Note that log files can be very large.

3. Enter the target directory in which the log file should be saved.
  4. If necessary, make further settings in the configuration interface.
  5. Select either [Apply] or [Ok] in order to save the settings.
- ☒ The log file will be applied upon the next start-up of the SMA OPC Server.

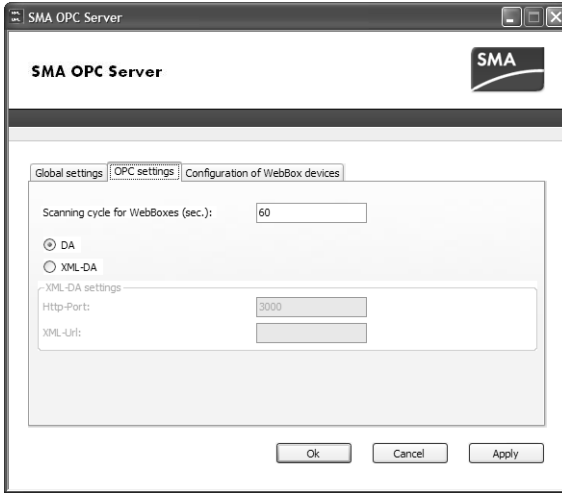
## 5.6 OPC Settings

The SMA OPC Server is equipped with an OPC Data Access (DCOM-based) interface, via which it makes the instantaneous and the parameter values of your PV plant available. You can also receive the values in xml format via the OPC XML-DA interface.

The SMA OPC Server supports the following interfaces:

- **OPC Data Access (DA)** - standard setting
- **OPC XML-DA** - optional

## 5.6.1 Setting the Scanning Cycle of Sunny WebBox Devices



Set the scanning cycle for the SMA OPC Server to scan instantaneous values from the registered Sunny WebBox devices. Thus, all Sunny WebBox devices will be scanned simultaneously at the set time interval.



### Duration of instantaneous value update

The time needed to update the instantaneous values depends on the following items:

- The scanning cycle setting in the SMA OPC Server Configuration
- The number of Sunny WebBox devices and connected devices of the PV plant
- The specific update speed of each individual device



### Data traffic via the RPC interface

The SMA OPC Server communicates with the Sunny WebBox via the RPC interface. In order to avoid a large amount of data traffic via the RPC interface, select a time span as high as possible (> 60 seconds) in which the Sunny WebBox devices will be asked for data. You will find the recommended scanning cycle for Sunny WebBox devices in the table on page 22.

1. Select the "OPC settings" tab.
2. In the "Scanning cycle for WebBoxes (sec.)" field, enter the time span in seconds in which the Sunny WebBox devices should be asked for data (default: 60 sec.). For recommended scanning cycles for Sunny WebBox devices refer to the following table:

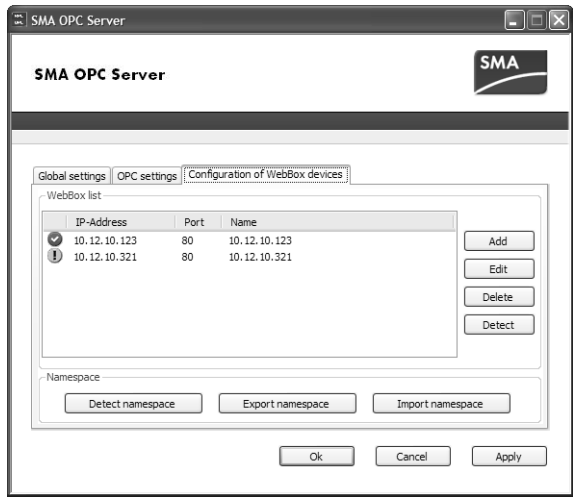
Number of Sunny WebBox devices	Number of devices detected in Sunny WebBox	Scanning cycle of Sunny WebBox devices in seconds
1	≤ 25	10
	> 25	30
5	≤ 25	10
	> 25	30
10	≤ 25	10
	> 25	30
20	≤ 25	10
	> 25	40
30	≤ 25	20
	> 25	60
40	≤ 25	40
	> 25	60
50	≤ 25	40
	> 25	60

- 3. If necessary, make further settings in the configuration interface.
- 4. Select either [Apply] or [Ok] in order to save the settings.
- ☒ The scanning cycle of the Sunny WebBox devices is set.

5.6.2 Enabling XML-DA

- 1. Select the "OPC settings" tab.
- 2. Select "XML-DA".
  - ☒ "XML-DA settings" can be edited.
- 3. In the "Http-Port" field, enter the port number of the XML service (default: 3000).
- 4. In the "XML-Url" field, enter the URL of the web service in the format "/XMLUrl/".
- 5. If necessary, make further settings in the configuration interface.
- 6. Select either [Apply] or [Ok] to save the settings.
- ☒ XML-DA is now activated.

## 5.7 Configuration of WebBox Devices



### 5.7.1 Sunny WebBox List

The "WebBox list" contains a list of all the Sunny WebBox devices from which the collected data is to be made available via the OPC interface.

#### Sunny WebBox List Symbols

The symbol which appears in front of each Sunny WebBox included in the list tells you whether the namespace of the device has been detected properly at least once. If the namespace of the Sunny WebBox is changed after detection, the symbol will not reflect this change. Detect the namespace again so that the changes are displayed.

Symbol	Meaning
	The namespace of the Sunny WebBox has been successfully detected.
	The namespace of the Sunny WebBox has not been detected or an error has occurred during detection (see section 9 "Troubleshooting" (page 31)).

### Managing the Sunny WebBox List

You can manage the list via the [Add], [Edit], [Delete] and [Detect] buttons.

Button	Meaning
[Add]	Adds a new Sunny WebBox to the Sunny WebBox list.
[Edit]	Edits the Sunny WebBox selected in the Sunny WebBox list.
[Delete]	Deletes the selected Sunny WebBox from the Sunny WebBox list.
[Detect]	Re-detects the namespace of the selected Sunny WebBox. This is how you can detect individual Sunny WebBox devices (e.g., if their namespace has been incorrectly detected or if a device in the PV plant has been replaced).

### 5.7.2 Adding a Sunny WebBox Device



#### Requirements for Sunny WebBox devices

The SMA OPC Server can detect all Sunny WebBox devices with firmware version 1.46, and later.

The Sunny WebBox devices to be detected by the SMA OPC Server must have been commissioned and all devices of the PV plant must have been detected.

1. Select the "Configuration of WebBox devices" tab.
2. Under "WebBox list" select the [Add] button.  
☒ The "SMA OPC Server" window opens.

3. In the "Name" field, enter the name of the Sunny WebBox under which the Sunny WebBox should appear in the OPC Client.

You can select any name, but it should be unique and cannot contain any special characters.

4. Enter the IP address or URL of the Sunny WebBox in the "IP-address/URL" field.
5. In the "Port" field enter the port of the Sunny WebBox, under which it is available. If no port number is assigned, port 80 is selected by default.
6. Enter the password of the Sunny WebBox in the "Password" field.

The password defines the read/write permission for the parameters. If necessary, read the Sunny WebBox manual.

7. Select [Save].  
☒ The "SMA OPC Server" closes and the Sunny WebBox is added to the list.
8. If necessary, make further settings in the configuration interface.
9. Select either [Apply] or [Ok] to save the settings.  
☒ The Sunny WebBox has now been added to the list.

### 5.7.3 Namespace

The Sunny WebBox delivers all parameters and instantaneous values of the connected devices (e.g. Sunny Boy inverters, Sunny Central inverters or Sunny SensorBox devices) to the SMA OPC Server. This data is designated as "namespace". The namespace is made available to the OPC Clients via the OPC interface of the SMA OPC Server.

Before detecting the namespace with the SMA OPC Server, all the devices of the PV plant must have been commissioned and detected by the relevant Sunny WebBox. Otherwise, the namespace cannot be detected correctly.



**Changes in the Sunny WebBox configuration**

Re-detect the namespace with the SMA OPC Server if there are any changes to the following properties of a Sunny WebBox:

- Change of firmware of the connected devices
- Change of the network setting of the Sunny WebBox
- Change in the devices of a PV plant which are detected via the Sunny WebBox (e.g., when an inverter is added, removed or replaced)



**Generating namespace backup file**

After detecting the namespace create a backup file using the [Export namespace] button. Save the backup file on a secure drive so that you can re-import the namespace in case of data loss. The Sunny WebBox devices do not need to be reentered.

Button	Meaning
"Detect namespace"	Detects the namespace of all registered Sunny WebBox devices. For large plants, the detection of the namespace can take up to 60 minutes.
"Export namespace"	Exports the namespace of all registered Sunny WebBox devices in xml format.
"Import namespace"	Imports a previously exported namespace.



**Parameter overview**

You will find a complete list of instantaneous values and parameters in the respective manual of your SMA product. The most frequently used instantaneous values can be found in section 10 "Measurement Channels" (page 33).

## 5.7.4 Replacing a Device

If you replace one or more devices in your PV plant, you must then re-detect the namespace of the given Sunny WebBox with the SMA OPC Server. To do so, proceed as follows:

1. Take the device to be replaced out of operation by following the instructions for that device.
2. Start up the new device by following the instructions for that device.
3. Connect the new device to the Sunny WebBox by following the instructions in the user manual for the Sunny WebBox.
4. Detect the new device at the Sunny WebBox by following the instructions in the user manual for the Sunny WebBox.
5. Re-detect the Sunny WebBox namespace on the OPC Server via the configuration interface. To do this, go to the "Configuration WebBox devices" tab in the "WebBox list", select the Sunny WebBox to which you have attached the new device, and then select [Detect].

☒ The namespace of the selected Sunny WebBox has been re-detected.

Notice: Replacing the device will change the connection of the OPC Client to the OPC Server.

6. Adjust the OPC Client variables to the OPC Server addresses.
- ☒ The device has now been replaced, and the Sunny WebBox namespace is now re-detected by the SMA OPC Server. The OPC Client connection to the SMA Server has been adjusted.

## 5.7.5 Device Firmware Update

If you update the firmware for one or more devices in your PV plant, you must then re-detect the namespace of the given Sunny WebBox with the SMA OPC Server. To do so, proceed as follows:

1. Carry out device firmware updates as described in the operating instructions for that device.
2. Detect the device with a new firmware version at the Sunny WebBox by following the instructions in the user manual for the Sunny WebBox.
3. Re-detect the Sunny WebBox namespace on the OPC Server via the configuration interface. To do this, go to the "Configuration WebBox devices" tab in the "WebBox list", select the Sunny WebBox to which you have attached the device with a new firmware version, and then select [Detect].

☒ The namespace of the selected Sunny WebBox has been re-detected.

Caution: Updating the firmware version of the device will change the connection of the OPC Client to the OPC Server.

4. Adjust the OPC Client variables to the OPC Server addresses.
- ☒ The device has now been replaced, and the Sunny WebBox namespace is now re-detected by the SMA OPC Server. The OPC Client connection to the SMA Server has been adjusted.




## 6 Operation

### 6.1 Starting SMA OPC Server

1. Select "Start > Programs > SMA > SMA OPC Server > OPC Server" in Windows.
  - Alternatively, click on the "SMA OPC Server" desktop icon on the desktop.
- ☒ The server is now running and supplying the instantaneous and parameter values of the PV plant via Data Access (DA) and/or OPC XML-DA to OPC Clients.

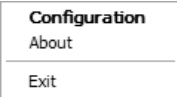
### 6.2 Status Display

The status of the SMA OPC Server is displayed via the tray icon.

Symbol	Status	Meaning
	Lights green	The SMA OPC Server is initialized and operating.
	Lights red	The namespace is not detected. Re-detect the namespace.
	Green, yellow, red flashing intermittently	The SMA OPC Server is carrying out the initialization.

### 6.3 Exit the SMA OPC Server

1. Click with the right mouse button on the tray icon of the SMA OPC Server in the task menu.
2. Select "Exit".



- ☒ The SMA OPC Server will close. Depending on the amount of data, this can take up to 2 minutes. The tray icon will be removed from the task menu.

## 6.4 OPC Client Information

### 6.4.1 OPC Client Installation



#### OPC Core Components

Before you can process instantaneous values and parameters of the PV plant with an OPC Client, you must install the OPC Core Components valid for your operating system on the SMA OPC Server and the computer of the OPC Client.

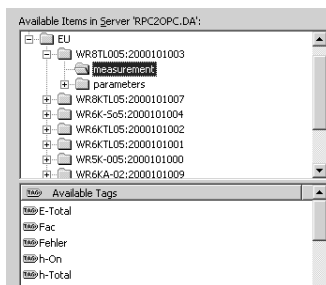
The OPC Core Components for the SMA OPC Server can be installed simultaneously with the installation of the SMA OPC Server. The OPC Core Components for the OPC Client are to be found on the CD provided.

### 6.4.2 Displaying the Namespace in an OPC Client

The namespace is displayed hierarchically in an OPC Client. The individual devices of the PV plant will be listed under the Sunny WebBox.

Each device contains the subdirectories "measurement" for the instantaneous values and "parameters" for the parameters.

*Example: OPC Client with the selection of the Sunny WebBox "EU" > Inverter "WR8TL005:2000101003" > "measurement".*

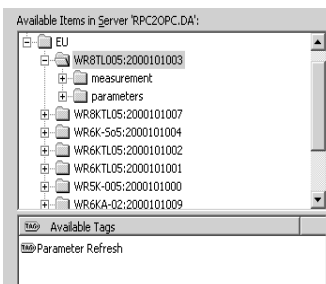


### 6.4.3 Changing Parameters via the OPC Client

During start-up of the SMA OPC Server, the server detects the parameter values of the connected Sunny WebBox devices once and makes them available to the OPC Client.

When parameter values are changed directly via a communication device (e.g., Sunny WebBox), these changes are not displayed automatically at the OPC Client.

You can update the parameter values by means of the "Parameter Refresh" option. To do this, enter "SMA" as the value in "Parameter Refresh", and save this value. The SMA OPC Server will update all device values. This can take up to 2 minutes.



## 7 Uninstalling SMA OPC Server



### **Write permission for uninstalling the SMA OPC Server**

You will need write permission for your operating system in order to uninstall the SMA OPC Server.

1. Shut down all OPC Clients communicating with the SMA OPC Server.
  2. Exit the current OPC Server.
  3. In Windows, select "Start > Programs > SMA > SMA OPC Server > Uninstall OPC Server".
  4. Follow the on-screen instructions.
- ☒ The SMA OPC Server is uninstalled.

## 8 Updating the SMA OPC Server

1. Uninstall the current SMA OPC Server (see section 7 "Uninstalling SMA OPC Server" (page 29)).
2. Install the new version of the OPC Server (see section 4 "Installation" (page 16)).




### **Existing Sunny WebBox list is automatically transferred**

The Sunny WebBox list is adopted from the previous SMA OPC Server version. However, you must re-detect the namespace.

3. Configure the new version of the SMA OPC Server (see section 5 "Configuration" (page 17)).
  4. Check whether the current Sunny WebBox list has been adopted.
- ☒ The new SMA OPC Server is installed.

## 9 Troubleshooting

#	Problem	Cause	Rectification
1	The network is grayed out. (Error code: 12028)	Incorrect network configuration.	<ul style="list-style-type: none"> <li>Check the network settings for the installed network components (e.g., server, router, Sunny WebBox devices, etc.) and adjust if necessary.</li> </ul>
		Defective network component cabling and connectors.	<ul style="list-style-type: none"> <li>Check cabling and plug connections of the individual network components (e.g., server, router, Sunny WebBox devices, etc.) for damage, and replace damaged cables or plugs, if necessary.</li> </ul>
		Defective network components.	<ul style="list-style-type: none"> <li>Check that the individual network components (e.g., server, router, Sunny WebBox devices, etc.) are operating properly. Replace defective devices if necessary.</li> </ul>
		Incorrect Internet access data.	<ul style="list-style-type: none"> <li>Check Internet access data. Correct settings if necessary.</li> </ul>
2	The namespace file cannot be saved.	Missing write permission on the drive.	<ul style="list-style-type: none"> <li>You require write permission for the drive on which the SMA OPC Server is installed. Change your user rights and re-detect the namespace.</li> </ul>
3	The config file cannot be saved.	Missing write permission on the drive.	<ul style="list-style-type: none"> <li>You require write permission for the drive on which the SMA OPC Server is installed. Change your user rights.</li> </ul>
4	The namespace file could not be imported.	Invalid namespace file format.	<ul style="list-style-type: none"> <li>Only namespace files that were exported via the SMA OPC Server configuration interface can be imported.</li> <li>The namespace file must not be changed.</li> </ul>
5	The program is already running.	The SMA OPC Server can only be started once.	<ul style="list-style-type: none"> <li>Exit the SMA OPC Server before restarting the server.</li> </ul>

#	Problem	Cause	Rectification
6	The namespace of an entered Sunny WebBox is invalid. 	The Sunny WebBox generated a communication error with the devices in the PV plant.	<ul style="list-style-type: none"> <li>Check the Sunny WebBox communication with each device in the PV plant. All devices in the PV plant must be commissioned. If communication has failed, rectify the problem and re-detect the connected devices with the Sunny WebBox. After this, re-detect the namespace of the given Sunny WebBox with the SMA OPC Server.</li> </ul>
		The Sunny WebBox replied with an error.	
		Devices of the PV plant are not detected with the Sunny WebBox.	
		The Sunny WebBox did not reply.	
		No devices from the PV plant are connected to the Sunny WebBox.	
7	The Sunny WebBox is taking too long to respond.	The query has exceeded the permitted time. (Error code: 12002)	<ul style="list-style-type: none"> <li>The SMA OPC Server will send another query. If the problem does not resolve itself, the error code 12029 will subsequently be displayed.</li> </ul>
		The attempt to generate a server connection failed. (Error code: 12029)	<ul style="list-style-type: none"> <li>Check the network (see point 1).</li> <li>If the problem cannot be solved in this way, please contact the SMA Service Line and make the log file available.</li> </ul>
8	Display problems in the configuration interface using Windows XP.	The classic display style is selected for windows and buttons.	<ul style="list-style-type: none"> <li>If the "classic" style is used in Windows, it can lead to display problems on the configuration interface. Use the "XP style" for windows and buttons.</li> </ul>
9	The OPC Client is not displaying data.	Missing OPC Core Components.	<ul style="list-style-type: none"> <li>Install the OPC Core Components on the computer on which the OPC Client is installed.</li> </ul>
10	The OPC Client parameter values are not up-to-date.	The "Refresh" parameter has not been run.	<ul style="list-style-type: none"> <li>Run the "Refresh" parameter.</li> </ul>

## 10 Measurement Channels

The following table lists the most frequently used instantaneous values using the Sunny Central 630HE as an example. You will find a complete list of instantaneous values and parameters in the respective manual of your SMA device.

### Inverter

Channel name	Unit	OPC address
Mode	-	WebBox_Name.SC630HE:123456789.measurement.Mode
Upv	V	WebBox_Name.SC630HE:123456789.measurement.Upv
Ipv	A	WebBox_Name.SC630HE:123456789.measurement.Ipv
Ppv	kW	WebBox_Name.SC630HE:123456789.measurement.Ppv
Iac	A	WebBox_Name.SC630HE:123456789.measurement.Iac
Pac	kW	WebBox_Name.SC630HE:123456789.measurement.Pac
E-today	kWh	WebBox_Name.SC630HE:123456789.measurement.E-heute
Vac L1	V	WebBox_Name.SC630HE:123456789.measurement.VacL1-L2
Vac L2	V	WebBox_Name.SC630HE:123456789.measurement.VacL2-L3
Vac L3	V	WebBox_Name.SC630HE:123456789.measurement.VacL3-L1
Fac	Hz	WebBox_Name.SC630HE:123456789.measurement.Fac
Error	-	WebBox_Name.SC630HE:123456789.measurement.Fehler
Tmplnt C	°C	WebBox_Name.SC630HE:123456789.measurement.Tmplnt C
h-On	h	WebBox_Name.SC630HE:123456789.measurement.h-On

### String-Monitor

Channel name	Unit	OPC address
IString 1	A	WebBox_Name.SC630HE:123456789.SMU8b005:987654321.measurement.IString 1
IString 2	A	WebBox_Name.SC630HE:123456789.SMU8b005:987654321.measurement.IString 2
Error	-	WebBox_Name.SC630HE:123456789.SMU8b005:987654321.measurement.Fehler

## 11 Contact

If you have technical problems concerning our products, contact the SMA Service Line. We require the following information in order to provide you with the necessary assistance:

- Software version of the SMA OPC Server
- Operating system
- Log file

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